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Charles L. Gardiner
Executive Director
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Charles,

In the “online survey” I completed in response to the invitation, “The Delta Vision Foundation Invites You to Evaluate Implementation Progress for the Delta Vision Strategic Plan,” I expressed concern about the technical unreliability and inadequacy of some of the information being incorporated into the Delta Stewardship Council’s (DSC) and BDCP’s review and assessment of the impact of altering Sacramento River flows through the Delta on Delta water quality. In following the deliberations on the DSC draft Plan in light of my more than 23 years of work on Delta water quality issues, I have been, and remain, troubled by the inadequate and in some instances technically invalid information that has been provided by DSC staff and BDCP contractors on Delta water quality issues. Furthermore, there has been almost no technically sound discussion of how proposed alterations in the flow of the Sacramento River through upstream diversions included in the implementation of the Plan, will impact Delta water quality. Presented herein is an elaboration and documentation of some of my involvement and work on these issues.

In 1989, while a Distinguished Professor of Environmental Engineering at the New Jersey Institute of Technology, I was asked to be a technical consultant to Delta Wetlands, Inc. in its evaluation of water quality impacts that could be anticipated to be associated with Delta island storage reservoirs it was proposing to develop. When I presented my findings – that the water quality in the reservoirs as proposed would be poor – Delta Wetlands terminated my involvement in this matter. Subsequently, DWR conducted an independent review of this issue and came to the same conclusion, that the water quality in such reservoirs would be poor.

Subsequently in 1989, I retired from 30 years of university graduate-level teaching and research and moved with Dr. Anne Jones-Lee, my wife, from New Jersey to El Macero, CA (near Davis) to expand our part-time private consulting into a full-time endeavor. Since then we have been active as the technical principals of G. Fred Lee & Associates, our specialty environmental quality consulting firm that serves a broad spectrum of clients in the evaluation and management of water quality, and solid and hazardous waste investigation/management-related issues. Over the years we have developed more than 1100 papers and reports on our research and consulting findings, many of which are available as downloadable files on our website www.gfredlee.com. That website also contains information on our educational backgrounds, areas of professional expertise, and professional experience.

During the 1990s Dr. Anne Jones-Lee and I served as *pro bono* consultants to the DeltaKeeper on Delta water quality issues. Through that work we became involved in the low dissolved oxygen issues of the SJR Deep Water Ship Channel (DWSC). That, in turn, developed into our serving as advisors to the SJR DWSC DO TMDL steering committee. We were selected by that committee and CALFED to be the principal investigators for the \$2-million CALFED-funded study of the prevalence, causes, implications, and potential remedies for the low-DO problem in the DWSC. As part of that work we became familiar with how the flow of the SJR through the southern Delta/SJR/DWSC impacts water quality in the South Delta channel. We were the first to show that state and federal water export projects in the South Delta were among the primary reasons for severe bouts of low DO in the SJR DWSC. We published summaries of the findings of the CALFED Low-DO project (cited below) that are available on our website www.gfredlee.com in the Watershed Studies section, San Joaquin River Watershed and Delta subsection at <http://www.gfredlee.com/psacriv2.htm>.

Lee, G. F., and Jones-Lee, A., "Synthesis and Discussion of Findings on the Causes and Factors Influencing Low DO in the San Joaquin River Deep Water Ship Channel near Stockton, CA: Including 2002 Data," Report Submitted to SJR DO TMDL Steering Committee/Technical Advisory Committee and CALFED Bay-Delta Program, G. Fred Lee & Associates, El Macero, CA, March (2003). <http://www.gfredlee.com/SJR-Delta/SynthesisRpt3-21-03.pdf>

After completing the SJR DWSC Low-DO project report we developed the first major overview reports on Delta water quality:

Lee, G. F. and Jones-Lee, A., "Overview of Sacramento-San Joaquin River Delta Water Quality Issues," Report of G. Fred Lee & Associates, El Macero, CA (2004). <http://www.gfredlee.com/SJR-Delta/Delta-WQ-IssuesRpt.pdf>

Lee, G. F., and Jones-Lee, A., "Overview—Sacramento/San Joaquin Delta Water Quality," Presented at CA/NV AWWA Fall Conference, Sacramento, CA, PowerPoint Slides, G. Fred Lee & Associates, El Macero, CA, October (2007). <http://www.gfredlee.com/SJR-Delta/DeltaWQCANVAWWAOct07.pdf>

Through those and other reports, we provided the first discussion of how altering flow in Delta channels – as influenced by flow manipulations and water diversions by water exporters – impacts water quality in the Delta channel. The following report also discusses some of the significant deficiencies in CALFED's programs and IEP monitoring programs for adequately addressing Delta water quality issues.

Lee, G. F., and Jones-Lee, A., "Impact of State and Federal Delta Water Export Projects on Delta Water Quality and Aquatic Resources: Issues That Need to Be Addressed," Report of G. Fred Lee & Associates, El Macero, CA, October (2004). <http://www.gfredlee.com/SJR-Delta/ImpactDelExpProj.pdf>

Since the development of those reports we have continued to be active in Delta water quality issues, particularly with reference to how flow manipulations in the Delta impact water quality. An overall summary of our work on Delta water quality, which includes a listing of many of our papers/reports on these issues, is available as:

Lee, G. F., and Jones-Lee, A., "Experience in Reviewing Delta Water Quality Issues," G. Fred Lee & Associates, El Macero, CA, April 3 (2011).
<http://www.gfredlee.com/SJR-Delta/GFLAJL-Delta-EXP-REV.pdf>

Key reports and papers cited in that review include:

Lee, G. F., and Jones-Lee, A., "Comments on Water Quality Issues Associated with SWRCB's Developing Flow Criteria for Protection of the Public Trust Aquatic Life Resources of the Delta," Submitted to CA State Water Resources Control Board as part of Public Trust Delta Flow Criteria Development, by G. Fred Lee & Associates, El Macero, CA, February 11 (2010).
http://www.gfredlee.com/SJR-Delta/Public_Trust_WQ.pdf

Lee, G. F., and Jones-Lee, A., "Review of Need for Modeling of the Impact of Altered Flow through and around the Sacramento San Joaquin Delta on Delta Water Quality Issues," and "Summary: Water Quality Modeling Associated with Altered Sacramento River Flows in & around the Delta," Report to CWEMF Stormwater Committee, by G. Fred Lee & Associates, El Macero, CA, March (2009). <http://www.gfredlee.com/SJR-Delta/Model-Impact-Flow-Delta.pdf>

Lee, G. F., and Jones-Lee, A., "Impact of SJR & South Delta Flow Diversions on Water Quality," PowerPoint Slides, Presentation to CA Water Resources Control Board, D1641 Water Rights Review, January 24 (2005).
<http://www.gfredlee.com/SJR-Delta/D1641SlidesSWRCBJan2005.pdf>

Lee, G., F., and Jones-Lee, A., "Need for Reliable Water Quality Monitoring/Evaluation of the Impact of SWRCB Water Rights Decisions on Water Quality in the Delta and Its Tributaries," Submitted to CA Water Resources Control Board Workshop on D-1641 Water Rights, Sacramento, CA, March 22 (2005).
<http://www.gfredlee.com/SJR-Delta/DeltaWaterExportImpactsPaper.pdf>

We also provided several sets of comments to the Delta Vision Blue Ribbon Task Force as part of the Delta Vision development, including:

Lee, G. F., and Jones-Lee, A., "Comments on September 19, 2008 Delta Vision Task Force Meeting Discussion of Nutrient-Related Water Quality Problems in the Delta," Comments submitted to P. Isenberg, Chair, Delta Vision Blue Ribbon Task Force, Sacramento, CA. Report of G. Fred Lee & Associates, El Macero, CA, October 14 (2008).
<http://www.gfredlee.com/SJR-Delta/DeltaVisionCom9-19-08.pdf>

Lee, G. F., and Jones-Lee, A., "Comments on 'Delta Vision Strategic Plan Fourth Staff Draft Volume 2: Strategy Descriptions,'" Comments submitted to P. Isenberg, Chair, Delta Vision Blue Ribbon Task Force, Sacramento, CA. Report of G. Fred Lee & Associates, El Macero, CA, September 30 (2008). <http://www.gfredlee.com/SJR-Delta/DeltaVisionStaffDraft4.pdf>

Lee, G. F., and Jones-Lee, A., “Delta Water Quality Standards Violations” and “Comments on Water Quality Sections of the Delta Vision Strategic Plan, Third Staff Draft – dated August 14, 2008,” Submitted to Delta Vision Blue Ribbon Task Force, Sacramento, CA. Report of G. Fred Lee & Associates, El Macero, CA, September 1 (2008). <http://www.gfredlee.com/SJR-Delta/DeltaVisionWQViolations.pdf> the failure of the staff to provide reliable and adequate water quality information that are on our website.

We have provided detailed comments on the DSC staff draft plan water quality chapter including:

Lee, G. F., Comments on SJR DWSC Low-DO issues discussed at March 28, 2012 BDCP meeting. Comments submitted to J. Grindstaff, Executive Officer, Delta Stewardship Council, by G. Fred Lee & Associates, El Macero, CA, April 28 (2012). http://www.gfredlee.com/SJR-Delta/Comments_SJR_DO_Issues_DSC.pdf

Lee, G. F., “Comments on Chris Earle’s Brief Summary of Conservation Measures as presented in Chapter 3 of the BDCP,” Comments to Karla Nemeth, CA Natural Resources Agency, G. Fred Lee & Associates, El Macero, CA, March 28 (2012). http://www.gfredlee.com/SJR-Delta/BDCP_ConservationMeasures_Com.pdf

Lee, G. F., Comment on Delta Stewardship Council Discussion of Cause of SJR Low-DO Problem, email to J. Grindstaff, Executive Director, Delta Stewardship Council, Comments from G. Fred Lee & Associates, El Macero, CA, February 10 (2012). <http://www.gfredlee.com/SJR-Delta/DSC-LowDO-Comment.pdf>

Jones-Lee, A., and Lee, G. F., “Impact of Dairy Wastes on San Joaquin River and Delta Water Quality Issues,” Report to As You Sow, San Francisco, CA, Report of G. Fred Lee & Associates, El Macero, CA, January 24, (2012). http://www.gfredlee.com/SJR-Delta/Dairy_Waste_Impact_Issues.pdf

Lee, G. F., and Jones-Lee, A., “Comments on the Adequacy of C. Dahm’s Discussion of Delta Eutrophication Issues & Delta N/P Ratios as a Cause of Adverse Impact on Delta Fish,” Comments to Delta Stewardship Council, Report of G. Fred Lee & Associates, El Macero, CA, November 17 (2011). <http://www.gfredlee.com/SJR-Delta/DSC-Comments-Dahm-Eutroph.pdf>

Lee, G. F., and Jones-Lee, A., “Comments on the DSC Staff Fifth Draft of Chapter 6 Devoted to Delta Water Quality Issues in the Delta Plan,” Comments Submitted to Delta Stewardship Council, Sacramento, CA, by G. Fred Lee & Associates, El Macero, CA, August 21 (2011). <http://www.gfredlee.com/SJR-Delta/DeltaPlan5DraftCh6Comm.pdf>

Those comments document significant deficiencies in the DSC staff understanding and representation of Delta water quality issues, and are available on our website in the SJR Delta subsection. The Delta Independent Science Board has also found the DSC staff water quality chapter drafts to be deficient in their discussion of Delta water quality issues. Several of the

reports on our website address the need to properly incorporate discussion of impacts of proposed Sacramento River diversions on Delta flows and Delta water quality.

It is with this background, experience, and written findings that we urge that the Delta Vision Foundation give particular attention to advocating that the DSC and BDCP include technically sound, comprehensive assessment of the influences of potential future water flow manipulations in the Sacramento and SJR River systems on water quality in the SJR Delta. If we can be of assistance in this matter please contact me.

If there are questions on our work on this matter please contact me. Fred

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